

Please amend the claims as follows:

1-50. (canceled)

Please add the following set of claims:

1. A reflecting micro-optical component comprising a microlens operative to couple light between first and second micro-optical components through total internal reflection of the light inside the microlens.

2. The reflecting micro-optical component of claim 1, wherein the microlens includes a curved envelope section and at least two non-parallel flat envelope sections, and wherein the light enters the microlens through one flat section, exits the microlens through a different flat section and is reflected internally at the curved envelope section.

3. The reflecting micro-optical component of claim 1, wherein the microlens includes a material transparent to light of a predetermined wavelength.

4. The reflecting micro-optical component of claim 3, wherein the material is a photoresist.

5. The reflecting micro-optical component of claim 3, wherein the material is a glass.

6. The reflecting micro-optical component of claim 2, further comprising a thin reflecting layer covering the curved envelope section.

7. The reflecting micro-optical component of claim 1, wherein the reflecting layer is a metal.

8. The reflecting micro-optical component of claim 1, wherein the first micro-optical element and the second micro-optical element are respectively a waveguide and a photodetector.

9. The reflecting micro-optical component of claim 1, wherein the first micro-optical element and the second micro-optical element are respectively a light source and a waveguide.

10. A reflecting microlens comprising:

- a. a curved envelope section separating a light transparent material from a first external medium;

- b. a first flat envelope section separating the light transparent material from a second external medium; and

- c. a second flat envelope section positioned substantially vertical to the first flat section and separating the light transparent material from a third external medium;

whereby light entering the microlens from the second external medium is totally internally reflected from the curved envelope section into the third external medium.

11. The reflecting microlens of claim 10, wherein the light transparent material is selected from the group of a photoresist and a glass.

12. The reflecting microlens of claim 10, further comprising a thin reflecting layer covering the curved envelope section.

13. The reflecting microlens of claim 12, wherein the reflecting layer is a metal.

14. The reflecting microlens of claim 10, wherein the second external medium is a waveguiding medium and wherein the third external medium is a photodetecting medium.

15. The reflecting microlens of claim 12, wherein the second external medium is a light emitting medium and wherein the third external medium is a waveguiding medium.

16. The reflecting microlens of claim 14, integrated on a substrate that includes the photodetecting medium and supports the waveguiding medium.

17. The reflecting microlens of claim 16, wherein the substrate is silicon.

18. A method of coupling light between first and second micro-optical components, comprising the steps of:

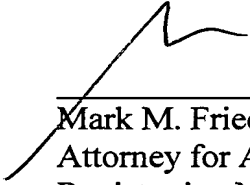
a. forming a microlens reflector operative to reflect light from the first to the second micro-optical component by total internal reflection; and

b. coupling light from the first to the second micro-optical component.

19. The method of claim 18, wherein the step of forming a microlens includes forming a photoresist microlens having a curved external surface.

20. The method of claim 19, wherein the step of forming a microlens further includes forming a thin reflecting layer over the curved external surface.

Respectfully Submitted,



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